

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Osteoconductive/ osteoinductive titanium/titanium alloy implant comprising:

a titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer, and the upper porous layer exhibits more than about 11 % porosity and less than about 30%.

2. (original) Implant according to claim 1, wherein the porous upper layer exhibits an open structure comprising a plurality of shallow craters.

3. (previously presented) Implant according to claim 1, wherein the upper layer has a thickness below about 1000 nm.

4. (previously presented) Implant according to claim 1, wherein the lower barrier layer has a thickness ranging between about 300 nm and 2000 nm.

5. (previously presented) Implant according to claim 1, wherein the thickness of said osteoconductive/osteoinductive double layer-structured oxide containing an additional element is from 300 to 3000 nm.

6. (cancelled)

7. (previously presented) Implant according to claim 1, wherein the lower barrier layer does not include any pores/craters or channels.

8. (cancelled)

9. (currently amended) ~~Implant according to claim 1~~
Osteoconductive/ osteoinductive titanium/titanium alloy implant

comprising:

a titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer,

wherein the crystal structure of titanium oxide is amorphous and/or amorphous and anatase and/or amorphous, anatase and rutile.

10. (currently amended) Implant according to claim 1
Osteoconductive/ osteoinductive titanium/titanium alloy implant
comprising:

a titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and

sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer,

wherein the relative concentration of the additional element incorporated into the anodic oxide layer formed on titanium/titanium alloy implants increases with the thickness of the oxide layer containing an additional element.

11. (currently amended) Implant according to claim 1 Osteoconductive/ osteoinductive titanium/titanium alloy implant comprising:

a titanium oxide with anodic incorporation of an additional element,

said additional element being a single one element chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium

oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer,

wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 50 %.

12-32. (cancelled)

33. (previously presented) Implant according to claim 1, wherein the upper layer has a thickness in the range of 100-500 nm.

34. (previously presented) Implant according to claim 1, wherein the lower barrier layer has a thickness ranging between in the range of 600-1500 nm.

35. (previously presented) Implant according to claim 1, wherein the thickness of said osteoconductive/osteoinductive double layer-structured oxide containing an additional element is between 800 and 1500 nm.

36. (currently amended) ~~Implant according to claim 1~~
Osteoconductive/ osteoinductive titanium/titanium alloy implant
comprising:

a titanium oxide with anodic incorporation of an
additional element,

said additional element being a single one element
chosen from the group consisting of calcium, phosphor and
sulphur, wherein,

said implant exhibits a cross-section of an
osteoconductive/osteoinductive oxide layer, which consists of a
double layer structure of an upper porous layer of the titanium
oxide with anodic incorporation of the additional element and a
lower compact barrier layer of the titanium oxide with anodic
incorporation of the additional element,

wherein the lower barrier layer comprises less of said
additional element than the upper porous layer,

wherein the upper porous layer exhibits more than about
11 % porosity and less than about 15%.

37. (currently amended) ~~Implant according to claim 1~~
Osteoconductive/ osteoinductive titanium/titanium alloy implant
comprising:

a titanium oxide with anodic incorporation of an
additional element,

said additional element being a single one element

chosen from the group consisting of calcium, phosphor and sulphur, wherein,

said implant exhibits a cross-section of an osteoconductive/osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element,

wherein the lower barrier layer comprises less of said additional element than the upper porous layer,

wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 25 %.

38-42. (cancelled)